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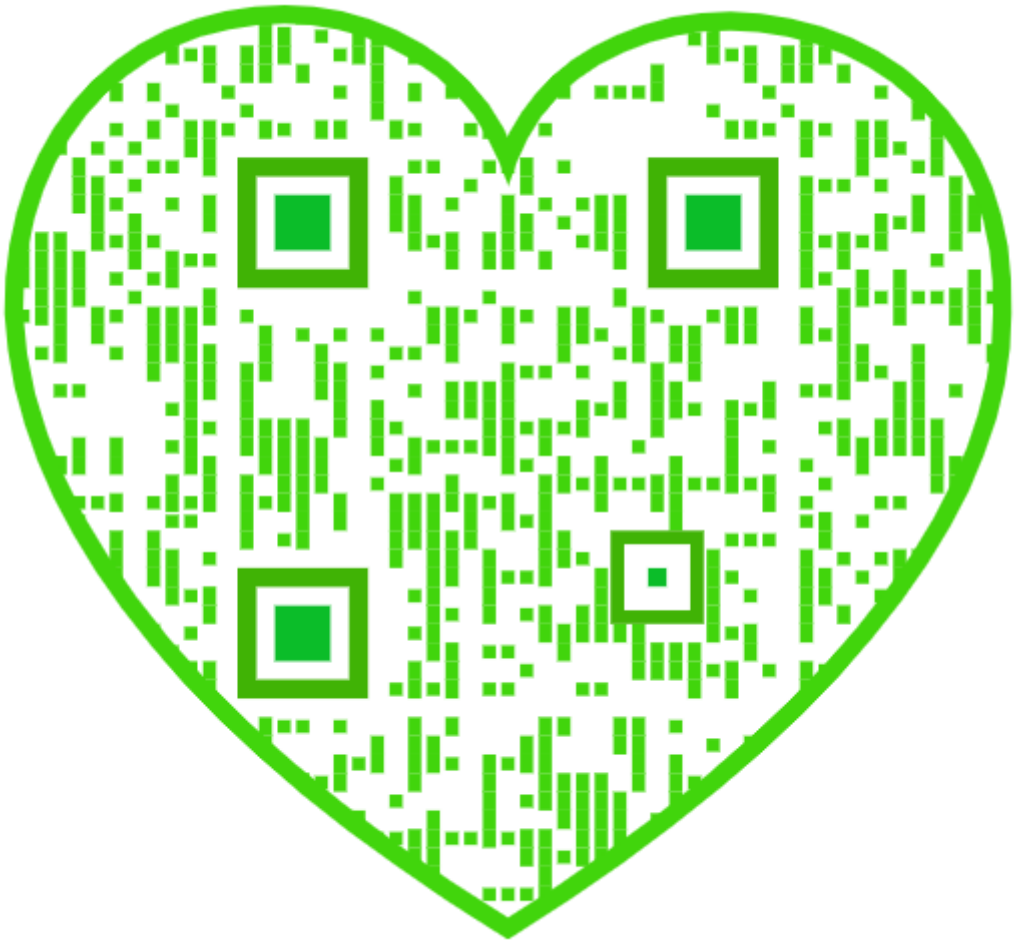

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BEEKEEPING PRACTICE IN NORTH CAROLINA

THE EXTENSION SERVICE SERVES THE STATE

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BEEKEEPING PRACTICE IN NORTH CAROLINA

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INTRODUCTION.

The purpose of this circular is to carry to the beekeepers of the State information concerning the particular methods of beekeeping which seem most needed. In another publication[2] the author has presented the results of a survey of beekeeping conditions in the State made in 1915, and the information presented in this circular is that which seems of most immediate importance to those beekeepers visited. The following manipulations are well known and have been described in other publications. Every beekeeper, present or prospective, should obtain one of the numerous books published on the subject. It is advisable also to subscribe for a bee journal. These sources of information will add many details which can here only be suggested.

MAKING A START WITH MOVABLE-FRAME HIVES.

Profitable beekeeping is difficult or impossible when bees are kept in log "gums" or "boxes," because many manipulations which are essential to success are impossible with such hives. In order that substantial returns may be obtained from bees, they must be kept in movable frame hives, so they may be controlled and their work directed into lines which will bring profit to the beekeeper.

The operation of changing bees from a log "gum" or "box" to a movable frame hive is called "transferring." There are several methods of transferring. Practically all the plans for transferring the entire colony require some skill in handling bees. There is one, however, which can be used successfully without much skill. It is simply to hive swarms in the movable-frame hives. This, of course, is possible only if the old colony swarms, and if the swarm does not fly away. Unless however, a large, early, first swarm is used, success is not likely to follow this plan. When a large early swarm is used, it should gather a crop the same season.

Each frame of the new hive, in which the swarm is placed, should be furnished with a full sheet of comb-foundation. This is a thin sheet of pure beeswax which has been passed between rolls which print on it a pattern resembling the central wall in a comb. Unless comb-foundation is used, it is useless and unprofitable to buy movable-frame hives, and it would be just as well to leave the bees in logs or plank "gums," as the combs are likely to be built crosswise of the frames, and therefore cannot be removed for examination. The use of narrow strips of foundation will insure straight combs, but is not recommended because so much drone-comb is usually built that the bees rear thousands of useless drones which consume the stores of the colony and do no gathering.

Other methods of transferring will be found discussed in books and bulletins[3] on beekeeping.

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1 Mr. Carr was engaged by the Bureau of Entomology, U. S. Dept. Agric., in fall and early winter of 1915 to make a survey of beekeeping conditions in North Carolina. This Circular has been prepared as result of his observations.

2 Carr, E. G., 1916. A survey of beekeeping in North Carolina. Bul. 489, U. S. Dept. Agr., Washington, D. C.

3 Phillips, E. F., 1911. Bees. Farmers' Bulletin No. 447, Bureau of Ent., U. S. Dept. of Agric., 48 pp., 25 figs.

NECESSARY EQUIPMENT FOR FIRST SEASON.

Assuming that the beekeeper obtains only one movable-frame hive and wishes to produce bulk-comb honey, the following equipment will be needed for the first season:

One ten-frame Langstroth hive, nailed and painted, consisting of the following named parts (these should be specified in the order to prevent mistakes):

1 bottom-board, ⅞ inch thick.
1 ten-frame hive-body (without division board).
10 self-spacing frames (wired).
1 telescoping double cover.
3 ten-frame shallow extracting supers with frames (without division-boards), one nailed for guide and the others "knock-down" if desired.
1 wood-wire queen-excluder.
1¼ lbs. medium-brood comb-foundation for brood body.
1½ lbs. thin-super comb-foundation for supers.
1 smoker, medium size.
1 veil (homemade or purchased).
1 screwdriver or hive-tool.

Printed directions for putting foundation in frames should be requested when ordering this equipment. The foundation should not be in the frames when shipped because it is likely to arrive in damaged condition. The first hive purchased should be assembled so that it may be used as a guide, but additional hives should be purchased "knock-down" to save expense. All hives should be painted before being used. White paint is preferred.

Dealers in beekeepers' supplies will be glad to furnish catalogs. If directions are followed, in normal years enough honey should be secured the first season to cover all expenses for equipment.

SWARM PREVENTION.

The idea is very common in the State that swarming is desirable. Often the result is that the colony casts one large swarm and one or more smaller ones. None of these produce surplus honey, and none, except the first swarm, survive the winter. Consequently the beekeeper frequently has the same number of colonies the following spring as he did the spring previous—and no honey.

Colonies which do not swarm are, as a rule, the ones which gather the largest crops, so that if swarming can be prevented, larger crops of honey will be secured. With the bees in movable-frame hives, control of swarming becomes a possibility.

Three readily controlled conditions influence the disposition of a colony to swarm: (1) lack of empty cells in which the queen can lay her eggs, (2) lack of combs for the storage of honey, and (3) lack of ventilation. When bees are seen fanning at the entrance, the opening should be enlarged to full size. This will partly supply the lack of ventilation and in some cases will be sufficient, but if, at any time, the bees hang out at the hive entrance, the hive should be raised from the bottom-board by one-inch blocks under the front corners of the hive. If this is still insufficient, blocks should be placed under the back corners also.

A ten-frame hive will usually be sufficiently large to provide the room needed by an ordinary queen for egg-laying. If the brood-nest is examined once a week during the swarming season and all queen-cells are destroyed, swarming will rarely occur under North Carolina conditions. The most desirable queens however can fill more than one ten-frame body with brood. In order to get the largest possible number of bees on hand at the beginning of the honey-flow, another hive-body may be provided for such queens for brood-

rearing previous to the honey-flow. This should contain combs built on full sheets of comb-foundation or, if combs are not available, the comb-foundation may be used. In adding this hive-body, two of the central brood frames from the old hive are placed above and their place is filled with empty combs or comb-foundation. This gives ample room for the queen, and also for the storage of any honey which may be gathered previous to the main honey-flow.

PREVENTING AFTER-SWARMS.

If the beekeeper desires an increase in the number of colonies, one swarm may be allowed to issue from each old colony. If the new swarm is hived in the old location and the old hive is moved to a new place, good results will follow. In this event the supers, if any, should be moved from the old colony to the swarm. This procedure is not so good as the entire prevention of swarming, but it will prevent after-swarms and will add to the new swarm the field bees that would otherwise remain with the parent colony.

If the parent colony is placed right beside the swarm and is then removed to another location in a week, the swarm is still further reduced and after-swarms more surely prevented. This must be done on the eighth day after the first swarm if after-swarms are not desired.

BULK COMB-HONEY PRODUCTION.

In localities where the market will accept bulk comb-honey at a profitable price, this type of honey has certain advantages. The bees work more readily in frames than in comb-honey sections. The crowding of the bees, with its attendant troubles from swarming and loafing, is not so essential for good work in the supers. When bulk comb-honey is packed in containers and covered with liquid honey it is not subject to damage by the waxmoth larvae.

As soon as the honey-flow starts, the second story for brood-rearing (if one has been added) should be removed, and the queen, all the bees, and preferably all sealed brood, should be placed in the lower story. Should there be less than ten frames of sealed brood, enough unsealed brood should be used to fill the hive. If there are less than ten frames of brood in all, frames of honey may be used to fill the lower story, these being placed on each side of the brood. Each hive at the beginning of the honey-flow should be full of brood or, lacking that, full of brood and honey so that there shall be no place for incoming honey in the brood-chamber, thus compelling the bees to store it in the supers. Should there be more frames of brood or honey than those necessary to completely fill each hive, additional ones may be placed on a weak colony. These may be made several stories high without harm, and their use will be explained later (p. 7). After putting on the queen-excluder, the supers, containing shallow frames with full sheets of thin foundation, are now added as explained under that heading (p. 6).

Another plan which is successfully used does not call for a second full-depth brood-chamber, but a shallow super is used to provide extra breeding space for the queen. When the brood occupies five full combs, the super with shallow frames is added above. This should contain full sheets of foundation if new or, after a start has been made, ready built combs. At the beginning of the honey-flow, the shallow supers for surplus honey are added as already explained, except that the first super (for breeding) is always kept on top, and when filled with honey after the emergence of the brood, the honey is extracted and is used to fill the spaces around the pieces of comb in the buckets. This super is the first to be added again the following season. With this plan a queen-excluder is usually not needed.

Unless the honey-flow is of long duration, no honey need be removed from the hive until nectar ceases to come in. The use of the bee-escape for removing honey is advised since, if the honey is of mild flavor, smoking out the bees

will often damage the flavor of the honey. The bees will also make holes in the cappings when disturbed by smoke.

Bulk comb-honey is usually packed in 5 and 10-pound friction-top tin buckets. The comb is cut from the frames and that which is well filled is cut to fit the bucket. Any remaining small pieces, or pieces in which the filling is not satisfactory, may be pressed and the honey is used to fill spaces between combs in the buckets. Should but a small part of the comb be well filled, the honey should be removed by the extractor. If the extracted honey has a tendency to granulate, it may be heated and poured over the combs as warm as possible without damaging the combs.

PUTTING ON THE SUPERS.

Many beekeepers are not getting a full crop of honey because they do not furnish enough room in such a way as to permit the bees to store the greatest crop. The time and manner of placing the supers on the hive are governed by conditions of honey-flow, and therefore no dates can be given. Each beekeeper must observe the plants which produce nectar, and their blooming season in his own locality. A discussion of the manipulation of supers is given in Farmers' Bulletin No. 503*, and a copy of this bulletin may be obtained by addressing the United States Department of Agriculture, Washington, D. C.

The plan in brief is to add the first super when the surplus honey-flow begins, and to place each super after the first one below the others, provided the honey-flow is expected to continue. If there is any doubt about the continuance of the honey-flow, the added super is placed on top.

The time for adding another super will be determined by the strength of the colony, the condition of honey-flow and the probability of a continuance of the flow. If the colony is strong, and if the honey-flow is heavy and can reasonably be expected to continue, the second super is placed below the first when work in the first is well under way. If the strength of colony or honey-flow is less favorable, the second super should not be added until more work has been done in the first. In like manner the third and any subsequent supers are added. Supers should always be added fast enough to give the bees ample room for the storage of honey without crowding. On the other hand, they should not be added in such numbers or in such a manner that many combs will not be well filled. It should never be assumed that the bees can fill only a certain number of supers, but, by giving close attention during the honey-flow, the bees should be given all the supers they can use advantageously. Three will often be not enough.

UNITING.

Sometimes through excessive swarming or loss of the queen, a colony becomes so weak in numbers by fall that it cannot survive the winter unless united with another colony. This is done by removing the cover from the stronger colony, after which a sheet of newspaper is spread over the hive and the hive containing the weak colony is lifted from its bottom-board and is placed over the stronger with the newspaper between. In a short time the bees will remove the paper and become one colony without disturbance.

In uniting, when one colony is queenless, move it to the queen-right one. If both have queens, and there is no choice, the queens may be disregarded. Should one queen be considered the better, kill the poorer one and move that colony to the queen-right one. When queenless colonies are found in early spring, uniting will be found to give better results than the purchase of queens, unless the surplus honey-flow comes late in the season.

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*Demuth, Geo. S., 1912. Comb Honey. Farmers' Bulletin No. 503, Bur. of Ent., U. S. Dept. of Agric., 47 pp., 20 figs.

FEEDING.

When, on account of lack of nectar or poor management by the beekeeper, the bees have insufficient food for rapid breeding in the spring or for their sustenance through a period when no nectar can be gathered, feeding must be done. The best time to feed for winter is about a week after the first killing frost in the fall. If enough food is given at this time—except in extreme cases—no other feeding will be necessary. Any lack of stores may often be supplied from full-depth combs which were removed when the supers were put on (p. 5).

Should combs of honey not be at hand, the best food is a syrup made of 2 to 2½ parts granulated sugar to one part hot water. The syrup should be brought to a boil, care being taken not to allow the sugar to scorch, and should be boiled 15 minutes. One ounce of tartaric acid to each 50 pounds of sugar should be added to the syrup before boiling. All the syrup needed by a colony should be given at one time rather than to feed in smaller quantities, since prolonged feeding starts brood-rearing, which is very undesirable at this season. There are a number of types of feeders on the market, but a shallow tin pan may be used of a size to fit an empty super and with sufficient capacity to hold all the food a colony will need. The warm syrup is placed in this pan in an empty super above the hive-body first placing some floating material, such as grass, shavings or a thin cloth spread over the syrup, to prevent bees drowning. It is best to feed just before dark to avoid undue disturbance in the apiary. If feeding is delayed until late it may be best to put the super and pan below the hive-body, in which case the syrup is taken more readily.

A friction-top tin can makes a good feeder when holes are punched in the lid one-half an inch apart and one-sixteenth of an inch or less in diameter. The warm syrup is placed in this can, which is turned upside down on top of the frames inside an empty super or brood-body. As many cans may be used at one time as are necessary to supply the needs of the colony.

WINTERING.

The climate of North Carolina, except in the mountains, is comparatively mild, and from the viewpoint of providing protection from the cold, winter-packing does not appear necessary to the average beekeeper. It is evident, however, that during the season when no nectar can be had there is more activity than is desirable, and the bees expend much energy to no purpose. If, therefore, the bees can be kept quiet during this period, better results are obtained. The object of packing is to maintain a more uniform temperature within the hive so that the midday temperature may not arouse the bees to great activity and thus to the useless expenditure of energy, and also, that the low temperature at night may not oblige them to generate heat uselessly by excessive activity within the cluster.

A common error is to leave some part of the hive unpacked. Sometimes the bottom is left without packing, sometimes it is the sides, packing being applied at the top only. There is no reason for leaving any part unpacked, except the common erroneous belief that heat escapes only from the top. A plan which is being used by some successful beekeepers is to place four colonies close together, two facing east and two west, in a box which can be taken apart and which is large enough to allow four inches of packing under the hives, six inches on the sides and eight to twelve inches on top. The box is, of course, provided with a water-tight lid. Planer shavings, leaves, dry sawdust or any like material may be used for packing. If leaves or other loose material is used it should be tightly packed. A passage way is made for the bees by a tunnel connecting the hive entrance with about six ⅝ inch holes bored in the case opposite the hive entrance.

The packing should be done soon after any necessary uniting or feeding has been done, and the protection should be left on in the spring until its removal becomes necessary to properly manipulate the colonies. Ample packing will not only prevent a needless waste of energy by the bees, but will also result in a smaller consumption of honey during the inactive period. The beekeeper should, however, see that the colonies are provided with an abundance of stores, with the assurance that much better results will follow.

REPAIRING FAULTY COMBS.

Many combs now in use contain so much drone-comb that the honey-crop is considerably reduced. The rearing of drones is, of course, at the expense of much honey. Such combs may be improved by cutting out the drone-comb and fitting in pieces of worker-comb.

NEED OF GOOD STOCK.

The need of good Italian bees to reduce loss through the depredations of the waxmoth and also to obtain larger crops of honey is apparent. After the apiary has been stocked with Italian bees it is advisable constantly to select for breeding those queens whose colonies give best results.

MARKETING.

Some beekeepers receive 8 cents to 12 cents per pound for wax less than others receive for the same quality of wax. In order that the proper price may be secured, one of two plans may be used. The beekeeper may either keep his wax from year to year until enough is on hand to make it advisable to ship to a good market, or a number may unite and thus make up a shipment. Since beeswax is not a perishable product, there is no need of disposing of the crop as soon as produced.

Good comb-honey is being sold by some producers in North Carolina at 12½ cents a section. At the same time comb-honey, no better in quality, is being received in the central part of the State in carloads, which costs the grocer at least 16 cents a section. It should be evident that the North Carolina producer will receive an equal amount for an equal quantity of product if it is placed on the right market, providing the quality is the same. One plan suggested is that the extensive producer search out the places where better prices can be secured. Another is for a number of smaller producers to engage one of their number to make sales on commission.